

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

| | | |
|---|---|----------------------|
| In the Matter of |) | |
| |) | |
| International Comparison and Consumer Survey |) | GN Docket No. 09-47 |
| Requirements in the Broadband Data Improvement Act |) | |
| |) | |
| A National Broadband Plan for Our Future |) | GN Docket No. 09-51 |
| |) | |
| Deployment of Advanced Telecommunications |) | GN Docket No. 09-137 |
| Capability to All Americans in a Reasonable And |) | |
| Timely Fashion, and Possible Steps to Accelerate Such |) | |
| Deployment Pursuant to Section 706 of the |) | |
| Telecommunications Act Of 1996, as Amended by the |) | |
| Broadband Data Improvement Act |) | |

To: The Commission

**COMMENTS OF THE SATELLITE INDUSTRY ASSOCIATION –
NBP PUBLIC NOTICE #23**

The Satellite Industry Association (“SIA”) hereby responds to the Commission’s Public Notice requesting comment on the broadband network deployment study prepared by the Columbia Institute for Tele-Information (“CITI”).¹ From SIA’s perspective as a U.S.-based trade association providing worldwide representation of the leading satellite operators, service providers, manufacturers, launch services providers, remote sensing operators, and ground equipment suppliers,² the CITI Study reinforces the axiomatic principle that universal broadband service will

¹ *Comment Sought On Network Deployment Study Conducted By The Columbia Institute for Tele-Information*, Public Notice, DA 09-2458 (rel. Nov. 20, 2009) (“Public Notice”). See *Broadband in America, Where it is and Where it is Going*, Preliminary Report prepared for the Staff of the FCC’s Omnibus Broadband Initiative by Columbia Institute for Tele-Information (Nov. 11, 2009) (“CITI Study”). The Commission describes the CITI Study as an “independent, outside expert review of project deployment of new and upgraded networks.” Public Notice at 1.

² SIA Executive Members include: Artel Inc.; The Boeing Company; CapRock Government Solutions; The DIRECTV Group; Hughes Network Systems, LLC; DBSD North America, Inc.; Integral Systems, Inc.; Intelsat, Ltd.; Iridium Satellite, LLC; Lockheed Martin Corp.; Loral Space & Communications Inc.; Northrop Grumman Corporation; Rockwell Collins; SES Americom, Inc.; SkyTerra Communications, Inc; and TerreStar Networks, Inc. Associate Members include: ATK Inc.; Comtech EF Data Corp.; DRS Technologies, Inc.; EchoStar Satellite, LLC; EMC, Inc.;

never be achieved in this country without satellite broadband systems to provide Internet access to the approximately ten million households that cannot ever be practicably served by terrestrial broadband systems.³ Regrettably, however, the CITI Study, which is a preliminary report, repeats without meaningful scrutiny a number of outdated perceptions about satellite technology that have been demonstrated in this and related Commission proceedings to be without merit. Cumulatively, these errors provide a misleading impression of satellite broadband services and their significance to the lives of the consumers around the country who rely on satellites for their broadband connectivity.

SIA offers these brief comments in response to the Public Notice. Pending correction of the flaws in CITI's presumably forthcoming final report, SIA urges the Commission to rely on the detailed and accurate information about the technical and practical capabilities of satellite broadband that SIA and several satellite providers have made to the Commission during the course of the above-captioned and related broadband policy proceedings.

In its study, CITI examined the state of broadband technology in America "based on what the broadband service providers have publicly announced" and other public sources.⁴ When CITI relies on official government sources for its information – as it does when citing the U.S. Census Bureau for information on the number of households⁵ – the study is generally accurate. When it relies on information provided by analysts and operator projections, it necessarily becomes a bit less

Eutelsat Inc.; iDirect Government Technologies; Inmarsat Inc.; Marshall Communications Corp.; Panasonic Avionics Corporation; Spacecom Ltd.; Stratos Global Corp; SWE-DISH Space Corp; Telesat; ViaSat Inc.; and WildBlue Communications, Inc. Additional information about SIA can be found at <http://www.sia.org>.

³ CITI Study at 7.

⁴ *Id.* at 6 (noting that CITI researchers collected data primarily from "service providers' public reports and statements; reports by investment analysts and research firms (which are generally based on information obtained from the service providers themselves); news reports quoting the service providers; and, information compiled by industry trade associations from their member companies").

⁵ CITI Study at 59 & n.236.

accurate. When CITI cites no source at all, as it does when it asserts that “[o]vercoming latency and signal loss due to precipitation have been major performance and quality obstacles for satellite providers[,]”⁶ the CITI Study paints an inaccurate portrait of a broadband delivery medium that is essential to the achievement of the Commission’s and Congress’s goal of universal broadband service to the country’s households. The CITI Study is thus right about the ability of satellite broadband systems to bring desired and essential broadband services to the country’s approximately ten million unserved households, but is incorrect in its inferences and assertions that the broadband services these systems will deliver are somehow inferior or inadequate when it comes to meeting users’ core requirements.

Consistent with what SIA and satellite operators and supporters have indicated in numerous comments in the above-captioned and related proceedings,⁷ CITI correctly notes that satellite broadband “is available in almost any location in the United States that has electrical power and a line-of-sight to the southern sky where satellites are ‘parked’ in geostationary orbits over the equator.”⁸ Where CITI starts to falter is when it concludes that satellite broadband is a medium of last resort due to “performance attributes that make it less satisfactory for many applications” than terrestrial broadband media.⁹ This conclusion in the CITI Study is overbroad, unattributed, and ultimately disserves the millions of end users who could most efficiently be served by satellite

⁶ *Id.* at 33.

⁷ *See, e.g.*, Comments of the Satellite Industry Association – NBP #11, GN Docket Nos. 09-47, 09-51, 09-137 (filed Nov. 4, 2009); Joint Comments of Hughes Network Systems, LLC and WildBlue Communications, Inc., GN Docket No. 09-51 (filed June 8, 2009); Comments of The MSS/ATC Coalition, GN Docket No. 09-51 (filed June 8, 2009); Comments of ViaSat, Inc., GN Docket No. 09-51 (filed June 8, 2009). *See also* Comments of Hughes Network Systems, LLC and Inmarsat, Inc., WC Docket No. 05-537, *et al.* (filed Nov. 26, 2008).

⁸ CITI Study at 25.

⁹ *Id.* at 7.

broadband – but who would be at a risk of remaining unserved if the CITI Study and its criticisms of satellite broadband are given credence in the Commission’s National Broadband Policy.

The CITI Study conclusion is overbroad in that it appears to be based on the single unattributed observation that “the latency caused by the time required sending a signal to the satellites and back means that satellites are less satisfactory than terrestrial broadband services for latency-sensitive applications such as voice telephony and interactive gaming.”¹⁰ Although some broadband applications (e.g., interactive gaming) could be adversely affected by latency, these applications represent a very small segment of overall Internet use. CITI itself recognizes that “latency is typically not noticed by the user during basic internet use (web browsing, E-mail).”¹¹

In reality, neither latency nor vulnerability to precipitation (another criticism of satellites that is cited without support in the CITI Study) is a meaningful impediment to high quality, reliable broadband service. In modern satellite systems, the effects of latency in geostationary-satellite orbit systems and networks have been largely mitigated as a result of significant improvements in satellite design and technology.

At its very core, a satellite broadband deployment depends on infrastructure whose fundamental simplicity substantially mitigates latency while enhancing reliability. In fixed-satellite installations providing broadband service, a small antenna is installed outside the consumer premise that connects to an indoor unit inside the residence. The RF signal is sent to a highly reliable satellite, which then amplifies and retransmits the signal to a hub station that is connected into the Internet backbone at a very high data rate. With such a simple infrastructure, reliability of the consumer link is kept high and the numbers of routers encountered by Internet protocol (“IP”)

¹⁰ *Id.* at 25.

¹¹ *Id.* at 33.

packets are few. While it is true that an IP packet on a satellite link faces a 270 millisecond time delay for a signal to go up to a geostationary satellite and return to the Earth, a similar packet originating on a terrestrial network also faces delays as it will need to be processed by a number of separate routers before it can reach the edge of the terrestrial ISP's network. By streamlining the infrastructure, satellite broadband providers close at least part of the time delay gap.¹² To close the gap even further, satellite broadband providers use various software schemes capable of predicting customer needs and caching information so as to keep transmission delays to an absolute minimum.

With regard to precipitation and its effects on satellite broadband performance, the statements contained in the CITI study are likewise wide of the mark. Far from being the “major performance and quality obstacle” that CITI alleges,¹³ precipitation impairments are a rare occurrence that require a convergence of multiple atmospheric and geometric variables – as evidenced by an overall service availability rate that meets or exceeds 99.7 percent for most satellite operators.¹⁴ CITI thus overstates the effect of precipitation on satellite broadband performance and the impact that it has on consumer satisfaction with the satellite broadband experience.

SIA urges the Commission to remain mindful of the fact that broadband customers, including satellite broadband customers, are often unwilling to pay a premium for data speeds and availability-enhancing features that are not required for the provision of core broadband applications (such as internet browsing and e-mail). The Commission cannot rationally expect to

¹² In other words, “latency” is an aggregate value that also includes the response time of the distance server being accessed and congestion on the multiple paths many terrestrial broadband transmissions travel on their path from origin to destination.

¹³ CITI Study at 33.

¹⁴ This impressive figure would be even higher if the satellite industry had elected to apply technological improvements realized over the past ten years, including multi-bit constellations, turbo coding and receiver designs, into improvements in service availability. Instead, satellite broadband providers, after consultation with their customers, properly concluded that broadband customers are generally satisfied with the current high availability level and prefer instead that these technology gains be translated into improvements in data speeds.

base a national broadband policy that will cover all current and prospective users on those features and technical characteristics that are required for the small number of the most demanding broadband users (Internet gaming and interactive gambling). To the extent that the CITI Study bases its criticism of satellite broadband on the incorrect and misleading notion that broadband by satellite is less than useful because a small minority of applications could suffer some latency effects, the study does not make a persuasive case against the inclusion of satellite broadband as an essential component of the National Broadband Plan.

SIA notes further that the CITI Study has not fully reflected the fact that broadband networks and media are not always strictly satellite or strictly terrestrial. Although the CITI Study notes the plans of Wireless Internet Service Providers (“WISPs”) to deploy WiMax networks in rural areas, it largely ignores the need for WISPs to “backhaul” their traffic to the Internet backbones, *i.e.* the so-called “middle mile” connection to the Internet backbones. In this regard, satellite services offer a cost-effective option for such connectivity to remote locations. Existing geostationary satellite networks provide this functionality today, and at least one company has plans to offer Internet backhaul connectivity using a new, high-speed, non-geostationary network.

The record of the instant proceedings is replete with reliable information on the capabilities, utility, desirability, and affordability of satellite broadband. The value and benefits of satellite broadband have also been recognized by the Commission. Just last year, the Commission stated that:

satellite facilities provide a competitive platform for delivery of broadband services, *which is especially well suited for extending these services to rural and unserved areas. In other words, satellite services employ cost-effective technology to serve communities with low penetration rates, especially those in remote areas.* In addition, the threat of competition from satellite-based broadband Internet access and other alternatives will stimulate deployment of broadband infrastructure, including more advanced infrastructure such as fiber to the home. Moreover, the number of consumers who receive their

broadband connection through satellite or other wireless technologies will continue to increase as new satellite services are launched.¹⁵

The bottom line for SIA is that satellite technologies are particularly well suited to provide cost-effective broadband Internet access to rural and high-costs areas, and the number of customers served by satellites continues to grow rapidly. Satellite broadband is the best and most cost-effective broadband option for many Americans.

SIA encourages CITI to take the foregoing comments into account as it progresses the Preliminary Report into a Final Report.

Respectfully submitted,

SATELLITE INDUSTRY ASSOCIATION

By: 

Patricia Cooper
President
1730 M Street, NW Suite 600
Washington, DC 20036
Tel. (202) 349-3650

December 4, 2009

¹⁵ 2000 Biennial Regulatory Review – Streamlining and Other Revisions of Part 25 of the Commission's Rules Governing the Licensing of, and Spectrum Usage by, Satellite Network Earth Stations and Space Stations, Eighth Report and Order and Order on Reconsideration, FCC 08-246 at ¶ 1 (rel. Oct. 17, 2008)(emphasis added).